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GOVERNMENT GAZETTE

BOLETIM OFICIAL

GOVERNMENT OF GOA, DAMAN
AND DIU

Secretariat

Notification

PDD/HS/2251/64

In partial modification of the notification issued under no. PDD/HS/2251/64 dated 1st December, 1964, the Government of Goa, Daman and Diu directs under sub-section (2) of Section 32 of the Dentists Act, 1948, (Central Act XVI of 1948) as amended by the Dentists Amendment Act 1955 (Central Act XII of 1955), that the period for submission of applications for registration is extended upto 28th February, 1965.

By order and in the name of the Administrator of Goa, Daman and Diu.

A. F. Couto, Development Commissioner.

Panjim, 18th January, 1965.

Home Department

Notification

HD-22-11630/64

In exercise of the powers conferred by Section 133-A of the Motor Vehicles Act, 1939, the Government of Goa, Daman and Diu establishes a Motor Vehicles Department with effect from 1st January 1965 and appoints Shri D. K. Sukthankar with the designation of a Director of Transport as an officer thereof.

By order and in the name of the Lieutenant Governor of Goa, Daman and Diu.

B. K. Chougule, Chief Secretary.

Panjim, 1st January, 1965.

Planning and Development Department

Notification

TNC/110/65

In pursuance of the provisions contained in sub-section (5) of section 20 of the Goa, Daman and Diu Agriculture Tenancy Act, 1964, the Government hereby fixes the 28th of July, 1964, as the date with reference to which all partitions and transfers of property referred to in that sub-section shall be ignored and deemed not to exist unless such partition or transfer is approved by the Tribunal.

By order and in the name of the Lieutenant Governor of Goa, Daman and Diu.

A. F. Couto, Development Commissioner.

Panjim, 15th January, 1965.

Development Department

Land Acquisition Act 1894 (I of 1894)

No. LAQ 3. — Whereas it appears to the Government of Goa, Daman and Diu (hereinafter referred to as «the Government») that the land, specified in the schedule hereto (herein after referred to as «the said land») is needed for the public purpose, viz. for construction of godowns under ware-housing and marketing scheme.

It is hereby notified under the provisions of section 4 of the Land Acquisition Act, 1894 (I of 1894) that the said land is needed for the public purpose, specified above.

2. All persons, interested in the said land, are hereby warned not to obstruct or interfere with any surveyors or other persons employed upon the said land, for the purpose of the said acquisition. Any contracts for the disposal of the said land by sale, lease, mortgage, assignment, exchange or otherwise, or any outlay or improvements, made therein without the sanction of the Collector, after the date of this Notification will under section 24 (seventhly) of the said Act, be disregarded by the officer assessing compensation for such parts of the land, as may be finally acquired.

3. The Govt. is further pleased to direct under subsection (4) of section 17 of the said Act, that as the acquisition of the said land is urgently necessary the provisions of section 5 A of the said Act shall not apply in respect of the said land.

4. Under clause (c) of section 3 of the said Act, the Government has appointed the Director of P. W. D. Goa, Daman and Diu, to perform the functions of the Collector under the Act.

5. The Government is also pleased to authorise under subsection (2) of section 4 of the said Act, the following officers to do the acts, specified therein in respect of the said land.

1. The Director of P. W. D., Goa, Daman and Diu.
2. The Director of Industries, Mines and Land Survey Goa, Daman and Diu.
3. The Director of Civil Supplies and Price Control, Goa, Daman and Diu.
4. The Civil Administrator, Bardez.

SCHEDULE

Concelho	Village Town	Description and the Boundaries of the said land	Approximate area of the said land
Bardez	Mapusa	Land belonging to Comunidade of Mapusa bounded on East land leased to Vital de Souza and Nallah on West land belonging to Comunidade of Mapusa. On North — Municipal Road on South land belonging to Comunidade of Mapusa.	3772 sq. meters

By order and in the name of the Administrator of Goa, Daman and Diu.

D. V. Savant, Deputy Secretary (Health).
Panjim, 8th January, 1965.

Land Acquisition Act 1894 (I of 1894)

No. LAQ 4. — Whereas it appears to the Government of Goa, Daman and Diu (hereinafter referred to as «the Government») that the land, specified in the schedule hereto (hereinafter referred to as «the said land») is needed for the public purpose, viz. for construction of motor stand.

It is hereby notified under the provisions of section 4 of the Land Acquisition Act, 1894 (I of 1894) that the said land is needed for the public purpose, specified above.

2. All persons, interested in the said land, are hereby warned not to obstruct or interfere with any surveyors or other persons employed upon the said land, for the purpose of the said acquisition. Any contracts for the disposal of the said land by sale, lease, mortgage, assignment, exchange or otherwise, or any outlay or improvements made therein without the sanction of the Collector, after the date of this Notification will under section 24 (seventhly) of the said Act, be disregarded by the officer assessing compensation for such parts of the land, as may be finally acquired.

3. The Govt. is further pleased to direct under subsection (4) of section 17 of the said Act, that as the acquisition of the said land is urgently necessary the provisions of section 5A of the said Act, shall not apply in respect of the said land.

4. Under clause (c) of section 3 of the said Act, the Government has appointed the Director of P. W. D. Goa, Daman and Diu, to perform the functions of the Collector under the Act.

5. The Government is also pleased to authorise under subsection (2) of section 4 of the said Act, the following officers to do the acts, specified therein in respect of the said land.

1. The Director of P. W. D., Goa, Daman and Diu.
2. The Director of Industries, Mines and Land Survey Goa, Daman and Diu.
3. The Administrator of Bardez.

SCHEDULE

Concelho	Village Town	Description and the Boundaries of the said land	Approximate area of the said land
Bardez	Mapusa	1. «Chinchacho Cungo» belonging to the Convent of S. Monica registered in the Revenue Office of Mapusa under No. 1458. 2. «Madolxeta e Parte de Andem» belonging to the Comunidade of Mapusa. 3. «Tiscondo» belonging to the Comunidade of Mapusa Bounded on the East by the Municipal Market on the west by the National Road; on the north by the present motor stand and on the south by water course.	15544 sq. meters

By order and in the name of the Administrator of Goa, Daman and Diu.

D. V. Savant, Deputy Secretary (Health).
Panjim, 8th January, 1965.

Forest Department

Notification

The following check-posts for checking of forest produce in transit have been established by the Forest Department in the Union Territory of Goa with immediate effect:

Sr. No.	Name of the check post	Situation (Taluka or Range)
1.	Mavlinguem	Satari
2.	Bondir	Bardez
3.	Nagarsem Palolem	Canacona
4.	Agonda	Canacona.
5.	Kiranpanim	Pernem
6.	Patradevi	Pernem
7.	Neibaga	Pernem
8.	Betul	Quepem.

All the vehicles carrying forest produce should stop at the above check-posts for facilitating the checking of the forest produce before the guard in charge of the check-posts.

Defaulters will be punished as per rules in force.

G. R. Mavinkurve, Conservator of Forests.

Panjim, 2nd January, 1965.

Finance Department

Office Memorandum

FS/F.III/2-9/21232/65

Subject: — Central Sales Tax Act, 1956 — Rules made under Section 13(1) — Amendment to:

A copy of notification no. F.8(6)-ST/62-II(1) dated 26th October, 1964, issued by the Government of India, Ministry of Finance, Department of Revenue and Company Law, New Delhi and published in part II Section 3(1) of the Gazette of India, Extraordinary dated 28th October, 1964 is forwarded herewith for information and guidance.

V. S. Srinivasagopalan, Deputy Secretary (Finance).

Panjim, 12th January, 1965.

Notification

G. S. R. 1584.— In the exercise of the powers conferred by sub-section (1) of section 13 of the Central Sales Tax Act, 1956 (74 of 1956), the Central Government hereby makes the following rules further to amend the Central Sales Tax (Registration and Turnover) Rules, 1957 in their application to the Union Territory of Goa, Daman and Diu, namely:—

1. (i) These rules may be called the Central Sales Tax (Registration and Turnover) Amendment Rules, 1964.

(ii) These rules shall come into force on the 1st day of November, 1964.

2. In sub-rule (3) of Rule 4 and in sub-rule (2) of Rule 8 of the Central Sales Tax (Registration and Turnover) Rules, 1957, for the words «local revenue stamps», the words «court fee stamps» shall be substituted.

Miss ANNA R. GEORGE

Deputy Secretary to the Government of India

Industries and Labour Department

Notification

LC/8/65/136

In exercise of the powers conferred by section 29 of the Indian Boilers Act, 1923 (V of 1923), the Government of Goa, Daman and Diu, hereby makes the following Rules, the same having been previously published as required by sub-section 1 of Section 31 of the said Act, namely:—

Rule 1. Short title and extent. — (1) These Rules may be called the Goa Boiler Rules, 1964.

(2) They extend to the whole of the territory of Goa.

Rule 2. Definitions. — In these rules unless the context requires otherwise—

(a) «the Act» means the Indian Boilers Act, 1923;
(aa) «appellate authority» means an appellate authority constituted by Rule 63;

(b) «Section» means a section of the said Act;

(c) «Regulation» means a regulation framed by the Board under section 28;

(d) «Rule» means a rule framed by the Government of Goa, Daman and Diu under section 29.

(e) «Commissioner» means the Labour Commissioner, Goa, Daman and Diu or any deputy appointed by him under any rule providing the appointment of a deputy.

Rule 3. All fees payable under the Act shall be deposited by the payer in a Government Treasury in Goa.

Applications under sections 7 and 8 to which the treasury or bank receipt is affixed shall be deemed to be accompanied by the prescribed fee.

All fees, costs and penalties under the Act shall be disposed of in such manner as the Government of Goa, Daman and Diu may direct.

Rule 4. The location and charge of the office for the territory of Goa, shall be as follows:—

Location	Officer-in-charge
27, Military Square Lane, Fort, Bombay.	Chief Inspector.

II. Duties of the Chief Inspector

Rule 5. The Chief Inspector shall work under the administrative control of the Secretary, Industries and Labour Department, Government of Goa, Daman and Diu and shall submit to him—

(a) an Annual Report on the Administration of the Act;

(b) such other reports and returns as may be called for by the Government.

Rule 6. Duty of general control. — The Chief Inspector is vested with all the powers of an Inspector under the Act. His main duty, however, consists in supervising and controlling the work of the Inspectors, and he should only actually inspect or examine boilers in exceptional cases, or where he considers that the work of an Inspector requires a personal check.

Rule 7. Specific duties. — The Chief Inspector shall—

(a) personally check the registration particulars and calculations submitted by Inspectors for all boilers inspected for registration as prescribed in Chapter IX of the Regulations and enter under his own signature the approved working pressure and all orders required by section 7;

(b) enter under his own signature any subsequent entries required in the registration book;

(c) obtain from the state of registry the registration book of any boiler the transfer of which is reported under section 6 (b);

(d) fix the area under the control of each Inspector and the Deputy Chief Inspector;

(e) approve the programmes of all Deputy Chief Inspectors and Inspectors subordinate to him with due regard to the convenience of owners generally;

(f) examine and countersign the Inspector's Memorandum of Inspection Book of each boiler after each inspection;

(g) examine and pass orders on the diaries and returns of Deputy Chief Inspectors and Inspectors;

(h) pass orders in all cases in which an Inspector proposes to increase or reduce the pressure allowed for any boiler under section 8, or to revoke, cancel or refuse to renew the certificate of a boiler under section 11, or to order important repairs, structural alterations, or renewals in a boiler under section 8;

(i) pass orders in all cases in which it is reported that after due notice the boiler has not been properly prepared for inspection;

(j) decide all appeals against the order of a Deputy Chief Inspector or an Inspector under section 19;

(k) sanction prosecutions under the Act;

(l) inquire into serious accidents to boilers.

Rule 8. Instruction to owners.—It shall be the duty of the Chief Inspector to advise owners as regards the maintenance, working and cleaning of boilers; he should issue a set of inspections on the lines indicated in Form C appended to these rules. These instructions should be hung up in each boiler house.

Rule 9. Registers to be kept.—The Chief Inspector shall keep in his office—

(a) a Register in Form A of all boilers registered in the State, or the registry of which has been transferred from another State;

(b) the Registration Book and Memorandum of Inspection Book of all boilers on his register;

(c) a register of appeals;

(d) a register of accidents.

(e) a register of registration and Inspection fees received.

Rule 10. Control of Bills.—The Chief Inspector shall be the controlling or countersigning authority in respect of all contingent bills and of travelling allowance bills of officers subordinate to him.

III. Duties of Deputy Chief Inspectors and Inspectors

Rule 11. Subordinate to Chief Inspector.—Deputy Chief Inspector shall be directly subordinate to and under the control of the Chief Inspector; they should ordinarily be appointed to take charge of specific areas.

Rule 12. General duties of Deputy Chief Inspectors and Inspectors.—The Deputy Chief Inspector shall exercise the powers and perform the duties conferred and imposed on Inspectors by or under the Act and perform such duties conferred on imposed on the Chief Inspector by or under the Act as are assigned to him. The main duties of Inspector, as laid down in the Act, are the inspection and examination of boilers and steam-pipes. Inspections shall be carried out in strict accordance with Chapter IX of the Regulations and Chapters IV and V of these rules.

Rule 13. Inspectors to see that boilers are worked according to law.—In addition to the inspection and examination of boilers it is the duty of Inspectors to search for unregistered or uncertificated boilers within their areas, and to see that certificated boilers are worked in accordance with the terms of their certificates, and with any regulation or rule under the Act for their safe working.

Rule 14. Inspectors to advise owners.—At the time of inspection, Inspectors should advise the owner and the person in charge of the boiler of the management and upkeep of the boiler with special reference to the amount of cleaning required in view of the quality of water use.

Rule 15. Specific duties.—(1) The Deputy Chief Inspectors shall also carry out the following duties in addition:—

(a) approve programmes of inspection work of all Inspectors;

(b) to examine and countersign the Inspector's Memorandum of Inspection Book of each inspection;

(c) to examine weekly diaries and returns of the Inspectors.

(d) to carry out such other duties as may be entrusted to them by the Chief Inspector.

(2) The Inspectors shall also carry out the following duties in addition:—

(a) prepare a programme of inspections with regard to the convenience of owners generally in the most suitable order of places to save time and expenditure in cross journeys and submit it at such periods as may be prescribed at least 14 days before the first date fixed in the programme to the Chief Inspector for approval to enable 10 days' notice required under sections 7 and 8 to be given to the owner;

(b) maintain a Memorandum of Inspection Book for each boiler under their charge and submit it to the Chief Inspector for examination and countersignature after each inspection;

(c) keep diary for weekly submission to the Chief Inspector showing places visited, boilers registered or inspected with fees paid thereon, variations from the programme and any other important particulars;

(d) receive applications for registration or inspection under section 7 or 8, proposals for repairs, alterations, or renewals under sections 12 and 13, and reports of accident under section 18;

(e) enquire into accidents to boilers and steam-pipes and report to the Chief Inspector;

(f) report to the Chief Inspector cases of unreported accidents discovered at the time of inspection;

(g) submit for the orders of the Chief Inspector—

(i) The Memorandum of Inspection Books of all boilers proposed for registration under section 7;

(ii) proposals for increasing or decreasing the pressure of a boiler after inspection under section 8;

(iii) proposals for necessary repairs, structural alterations or renewals to a boiler under section 8 or 12;

(iv) proposals for revoking, cancelling or refusing to renew a certificate under section 11 or 8;

(v) report when boilers have not been properly prepared for inspection under section 14;

(vi) proposals for prosecution under the Act.

Rule 16. Inspections at special times.—No examination of a boiler shall be made by an Inspector for the purpose of registering or issuing a certificate for a boiler on a Sunday or gazetted public holiday or between the hours of sunset and sunrise without the specific orders of the Chief Inspector in each case. In such case an extra fee equal to the usual registration of inspection fee for the boiler may be charged and half of the extra fee may be paid to the Inspector.

Rule 17. Attendance during hearing of appeals.—Under the orders of the Chief Inspector, Deputy Chief Inspectors, Inspectors shall attend during the hearing of appeals with regard to boilers under their

charge before the Chief Inspector of the Appellate Authority.

Rule 18. Registers to be kept.—Every Deputy Chief Inspector or Inspector in charge of an office shall keep—

- (a) a register in Form A of all registered boilers situated within his jurisdiction;
- (b) a register of accidents;
- (c) a register or registrations and inspection fees received.

IV. Administrative Instructions for Registration

Rule 19. Importance of registration.—Technical regulations for the registration of boilers and the scale of fees for registration are prescribed in Chapter IX of the Regulations. The details of measurements recorded at the time of registration constitute a permanent record for the boiler and determine the original pressure at which the boiler is allowed to work. It is accordingly essential that the work should be done with the greatest care and precision.

Rule 20. Receipt of applications.—Applications for registration shall be made under section 7(1) either to the Chief Inspector, Deputy Chief Inspector or to the Inspector of the local area in which the boiler is situated and shall be accompanied under Rule 3 by a receipt for the prescribed fee. No application shall be accepted without the receipt. No boiler shall be registered if on measurement the fee is found to be deficient, until the deficit has been paid. Any excess payment will be refunded at the time of registration.

Rule 21. Necessity of avoiding delay.—It is essential that no delay should occur in registration. In large towns, the measurements under section 7(3) should ordinarily be completed and the report submitted to the Chief Inspector within 7 days of the receipt of the application; in no case should the interval exceed 30 days. The Chief Inspector should issue his orders under section 7(4) without delay.

Rule 22. Register of registered boilers.—The Chief Inspector shall maintain a Register of registered boilers in serial order in Form A in two parts: in Part I (boilers originally registered in the State) the registered number of a boiler shall be the one immediately following the last serial number in the Register. Gap number due to boilers being broken up or transferred to another State shall not be filled up. In Part II (boilers originally registered in other States) entries shall be made as prescribed in Rule 24. Deputy Chief Inspectors or Inspectors in charge of an office shall keep a similar Register for all boilers within their jurisdiction.

Rule 23. Procedure on transfer of a boiler.—Whenever a boiler is transferred from another State into the territory of Goa the owner shall, under section 6(b), apply to the Chief Inspector for the registration of the transfer; the boiler cannot be used until registration has been effected. The Chief Inspector shall then obtain from the State from which the boiler was transferred the Registration Book and Memorandum of Inspection Book of the boiler. No fee shall be charged for recording transfers.

Rule 24. Entry of transferred boiler in Register.—On receipt of the Registration and Memorandum of Inspection Books, the Chief Inspector shall enter the boiler under its original number in Part II of his Register, and shall instruct the Deputy Chief Inspector or Inspector of the local area in which the boiler is situated to enter it similarly in his register. The Registration Book and the Memorandum of Inspection Book shall be kept in the Chief Inspector's office.

Rule 25. Note of transferred and dismantled boilers.—Whenever a boiler has been transferred to another State or broken up the fact shall be noted in the Register. In the case of a boiler that has been permanently dismantled the Registration Book and the Memorandum of Inspection Book shall be destroyed.

V. Administrative Instructions for Inspection

Rule 26. Procedure of Inspections.—Internal Inspection—Detailed instructions for the inspection of boilers are contained in Chapter IX of the Regulations. The following general procedure at inspection should be observed:—

At a thorough inspection of a boiler the Inspector wherever the size and construction of the boiler permit, go inside it and make a thorough inspection of all its internal parts. But before doing so he should satisfy himself that proper provision has been made for disconnection from any other boiler under steam.

Should he find that proper provision for disconnection has not been made or that the boiler has not been properly cleaned or scaled or that it is unreasonably hot he should decline to proceed with the inspection and should report the facts to the Chief Inspector for orders under section 14(2).

When a boiler is of such a size or its construction is such that the Inspector cannot go inside it, there must be sufficient sight holes or hand holes provided to enable him to see the principal internal parts. If any important part of a boiler is so constructed that the Inspector cannot examine it he should report the facts to the Chief for orders.

Rule 27. External inspection.—Boilers must be examined externally as well as internally; particular attention should be paid to the external parts of the boilers where in contact with seating blocks and brick work, especially when the situation is damp. Having regard to any serious defects discovered, Inspectors should take care, in order to ensure proper inspection, that boilers, of which the whole of the outside cannot be readily examined, are cleared whenever they consider it necessary of any concealing covering, supports or fittings.

Saddle tanks and engine fittings of locomotive type boilers should be removed for inspection of the parts underneath at the first inspection and at any reasonable period afterwards if the Inspector cannot satisfy himself. If the owners in any special case have any good reasons for not wishing to clear covered parts the case should be submitted to the Chief Inspector for orders. The Inspector must keep in mind that he is not to certify as efficient any boiler regarding the condition of which he cannot thoroughly satisfy himself.

Rule 28. Casual working inspection.—At the inspection of one of a battery of boilers the Inspector should take the opportunity of examining the other boilers under steam with special reference to the water gauges, pressure and safety valves.

Rule 29. Proposals for reduction of pressure.—When the Inspector decides that a boiler in one or more of its parts is no longer fit for pressure approved for it he should, without delay, report his proposals for reducing the pressure to the Chief Inspector and at the same time submit his calculations for the wasted parts for check and approval of pressure. With regard to pitting and wasting of shell plates the Inspector must bear in mind that shell plates ordinarily are considerably stronger in the body of the plate, owing to being unpierced, than at the seams and consequently may become reduced in thickness to an appreciable extent in the body of the plate i. e. elsewhere than at the seams, and still be stronger than the seams.

Rule 30. Repairs to boilers.—Under section 12 of the Act the sanction of the Chief Inspector to all repairs proposed for boilers must be obtained beforehand.

A few water tubes or smoke tubes, however, may in an emergency be renewed pending the sanction of the Chief Inspector but all such cases must be reported immediately to the Chief Inspector who may, if he deems fit, notify his sanction to the owner without verification of the renewals by an Inspector.

Generally in repairing boilers the object to be obtained is to make up for damage or wastage by suitable compensation, either by renewal or repair of the part affected. Covering patches applied with the object of hiding defects are a source of danger and must not be passed.

Welding by electric and oxy-acetylene processes may be employed in the repair of boilers, but, as the efficiency of the welding depends largely on the skill and care of the operator each case will have to be decided on its merits.

Proper attention must be paid to the annealing of welded parts. An Inspector should, wherever possible, be present during some part at least, of the welding operations.

Extensive repairs such as renewal of furnaces, and plates, parts of shell, fire-boxes, girders etc. should be supervised, so far as his other duties permit, by the Inspector and at such time when fire-boxes and smoke tubes of locomotive type boilers are withdrawn, advantage of the opportunity should be taken to inspect the internal parts otherwise inaccessible to close inspection.

Repairs to boilers are prescribed in Chapter IX, Regulation 92 of the Regulations.

Rule 31. Entries in Memorandum of Inspection Books.—An Inspector shall, as soon as convenient after an inspection, make the necessary entries in the Memorandum of Inspection Book for the boiler and submit the book to the Chief Inspector. Care should be taken to preserve the book and to keep them clean. Inspection notes should briefly state to what extent boilers were cleared of brick-work, lagging or concealing parts, the general condition of the boiler; parts requiring attention of repair and if special preparation is required at the next inspection.

Inspectors should also note in the Memorandum of Inspection Books all casual visits, Inspections of

steam pipes, visits for inspection of repair, inquiry, into accidents, etc., and so provide a useful record of the history of the boiler for the information and guidance of Inspectors at subsequent inspections.

In making inspection it is important that the Inspector should pay particular attention to entries made in the Memorandum of Inspection Book at previous inspections.

Rule 32. Entries in certificates.—In addition to the entries required to be made under Regulation 389 in a certificate for a boiler the Inspector should state in the remarks column his requirements, if any, with regard to hydraulic test, removal of lagging, brick-work or other concealing part for the next inspection to enable the owner to have the same properly prepared at that time. He should also state in the same place his requirements regarding the repair or renewal of any part that might be considered fit only for the period of the certificate.

In the repairs column should be entered the year of repair, and description of repairs effected. Only imported repairs should be noted.

His remarks should be brief. In the absence of remarks on the condition of boiler, the boiler will be considered to be in good condition.

Rule 33. Engraving of Registry Number.—Paper slips of the proper size bearing the registry number allotted for a boiler will be supplied by the Chief Inspector. The slip should be pasted on the part of the boiler pointed out by the Inspector and the device traced through with a cutting tool. The engraving should then be completed by the removal to the prescribed depth of the metal between the traced lines.

Rule 34. Arranging for inspections.—In arranging for inspections particular attention should be paid to the provisions of Rule 15(a). The notice required by section 7(2) and 8(4) shall be sent in Form B. If a hydraulic test is necessary in addition to the ordinary inspection ample notice must be given to the owner.

Rule 35. Issue of certificates and provisional orders.—In cases in which the Inspector is empowered to issue a certificate under section 8 without further reference, the certificate should ordinarily be issued within 48 hours of the completion of the inspection. Where he proposes to issue a provisional order, the Inspector must satisfy himself that the boiler is fit to be worked at the maximum pressure and for the period entered in the provisional order. The fact of issue of a provisional order must be reported immediately to the Chief Inspector.

Rule 36. Provisional orders to be issued after hydraulic tests.—Provisional orders should be issued in every case of registration after hydraulic test of boiler if the Inspector is satisfied.

The steam test may be witnessed at any convenient time within the period of the provisional order after which, if test is satisfactory, the certificate under section 7(6) is to be issued.

Rule 37. Forms of provisional orders and certificates.—Provisional orders and certificates are prescribed in Forms V and VI respectively of the Regulations.

The period specified in any provisional order or certificate shall begin on the day following that on which the enabling thorough inspection or hydraulic

test is made. Where a certificate supersedes a provisional order during the period of its currency, the period of the certificate shall be retrospective and shall begin from the same time as that of the provisional order.

Rule 38. Duplicate certificates.—A duplicate of any certificate granted under section 7 or section 8 which is at the time in force shall be granted by the Chief Inspector on the application of the owner of the boiler if the Chief Inspector is satisfied that duplicate is required for a bona fide purpose and the fee prescribed under Rule 45 is paid.

Rule 39. Fees for inspection.—Fees for inspection shall be calculated on the basis of boiler rating as prescribed in Chapter IX, Regulation 384, of the Regulations. The following fees are prescribed.

Registration fees.—Fees for registration and first inspection of boilers and miniature boilers are prescribed in Regulations 385 and 621 (d), of the Regulations.

Inspection fees for renewal of certificates:

Fees for inspection of boiler for renewal of its certificates shall be levied in accordance with the following scales:—

	Rs.
For boiler rating not exceeding 9.3 sq. metres	70
For boiler rating exceeding 9.3 square metres but not exceeding 27.9 square metres	80
For boiler rating exceeding 27.9 square metres but not exceeding 46.5 square metres	90
For boiler rating exceeding 46.9 square metres but not exceeding 65.1 square metres	105
For boiler rating exceeding 65.1 square metres but not exceeding 83.7 square metres	125
For boiler rating exceeding 83.7 square metres but not exceeding 102.3 square metres	145
For boiler rating exceeding 102.3 square metres but not exceeding 186 square metres	165
For boiler rating exceeding 186 square metres but not exceeding 372 square metres	190
For boiler rating exceeding 372 square metres but not exceeding 558 square metres	220
For boiler rating exceeding 558 square metres but not exceeding 774 square metres	250
For boiler rating exceeding 774 square metres but not exceeding 930 square metres	280
For boiler rating exceeding 930 square metres but not exceeding 1,116 square metres	320
For boiler rating exceeding 1,116 square metres but not exceeding 1,302 square metres	360
For boiler rating exceeding 1,302 square metres but not exceeding 1,488 square metres	400
For boiler rating exceeding 1,488 square metres but not exceeding 1,674 square metres	450
For boiler rating exceeding 1,674 square metres but not exceeding 1,860 square metres	500
For boiler rating exceeding 1,860 square metres but not exceeding 2,046 square metres	550
For boiler rating exceeding 2,046 square metres but not exceeding 2,232 square metres	600
For boiler rating exceeding 2,232 square metres but not exceeding 2,418 square metres	650
For boiler rating exceeding 2,418 square metres but not exceeding 2,604 square metres	700
For boiler rating exceeding 2,604 square metres but not exceeding 2,790 square metres	750

Above 2,790 square metres for every 186 square metres or part thereof an additional fee of Rs. 20/- shall be charged.

Fees for ordinary inspection of a miniature boiler shall be Rs. 30/-.

Provided that when any owner is willing to accept a renewed certificate for less than twelve months in order to approximate the date of annual inspection to the date on which other boilers in the locality are inspected, a certificate for such period less than twenty months, as may be necessary for such approximation of dates may be granted at a reduced fee to

be calculated at one-twentieth of the ordinary fee for each full month, portion of a month not being reckoned.

Rule 40. Fee to cover inspection and tests.—A fee paid for the inspection of a boiler shall cover thorough inspection, hydarulic test and steam test where such are necessary, subject to the provisions of section 14(2).

Rule 41. Second fee in default.—A second fee will be leviable for reinspection in any case where the inspection of a boiler is begun, but owing to the fault or neglect of the owner or person in charge, is not completed within a period of six months from the date of commencement of inspection.

Rule 42. Sanction of Chief Inspector to second fee.—No extra fee shall be levied except with the sanction of the Chief Inspector.

Rule 43. Special fee for inspections out of season.—For any inspection of a boiler situated at a place which is visited by an Inspector one or more times in a year for the purpose of inspecting boilers, if an owner or person in charge of a boiler fails to avail himself of the services of the Inspector during the usual periods for visiting the district and applies for inspection at a time which would necessitate a special journey by the Inspector when before the Inspector undertakes such a journey the owner or person in charge shall, in addition to the registration or inspection fee, pay such sum into the Government Treasury to cover the rail, conveyance and travelling allowance charges of the Inspector from the nearest headquarters and of any class IV servant accompanying him as the Chief Inspector may determine.

Rule 44. Fee for Registration Book.—The fee for copy of Registration Book, excluding inspection notes and calculations, shall be ten rupees.

Rule 45. Duplicate certificate fees.—Fees for duplicate certificates issued under Rule 38, shall be five Rupees.

Rule 46. Refund of fees.—Fees paid in excess and fees paid for an inspection which for any reason not due to any fault or omission of the owner or person in charge of the boiler has not been made, shall be refunded if a refund is applied for within one year from the date of payment.

VI. Accidents

Rule 47. Investigation of Accidents.—On the receipt of a report of an accident to a boiler or steam-pipe under section 18, the Inspector should, with the least possible delay, proceed to the place to investigate the accident. If the report is received by the Chief Inspector, he should forward it at once to the Inspector within whose jurisdiction the accident has occurred for necessary action.

Rule 48. Procedure during enquiry.—The Inspector at his inquiry shall make a careful examination of the damaged parts, and shall take such measurements and make such sketches for the purpose of his report, as he may deem necessary. He shall inquire into the circumstances attending the accident and note the time of its occurrence, its nature and extent, the injury caused to persons and the damage

done to property. The report should be in the style of the Reports of Preliminary Enquiries under the British Boiler Explosions Act, 1882 and 1890.

Rule 49. Power to hold inquiry in writing. — Deputy Chief Inspectors and Inspectors are authorised to take the written statements of witnesses and all persons immediately concerned with the accident. In order to comply with the provisions of section 18(2) the Deputy Chief Inspector or the Inspector should present to the owner or person in charge of the boiler a series of written questions on all points that are material to the inquiry.

Rule 50. Use of boiler after accident. — The Inspector must decide whether the use of the boiler can be permitted at the same or at a lower pressure without repairs or pending the completion of any repairs or alterations that he may order. In no case should he issue a provisional order or renewal certificate, until his orders have been carried out.

Rule 51. Procedure in case of serious accidents. — The report should be sent without delay to the Chief Inspector if he considers that the investigation has been sufficient he will record the facts in his Register of accidents and enter a brief account of the accident in the Registration Book, a copy being made in the Memorandum of Inspection Book. If, however, the accident is of a serious nature and in all cases in which an explosion has occurred the Chief Inspector should, after receipt of the Inspector's report, proceed to investigate the accident personally either alone or with the assistance of a member of the panel of assessors appointed under Rule 64 who may be appointed for this purpose by the Commissioner. Report of such inquiries should be recorded as indicated above.

Rule 52. Remuneration of Assessors. — The Assessor shall be remunerated at such rate as may be prescribed by the Government of Goa, Daman and Diu and be allowed the travelling expenses incurred by him in attending the inquiry.

Rule 53. Reference in Annual Report. — A brief account of all accidents and their causes should be included in the Chief Inspector's Annual Report.

Rule 54. Unreported accidents. — If in the course of an inspection or at any other time, the Deputy Chief Inspector or Inspector discovers damage which comes within the definition of an accident, but which has not been reported he should report the facts at once to the Chief Inspector for action under section 24(d).

VII. Appeals

Rule 55. Filing of appeal. — Every petition of appeal shall be made in writing either in English or in the vernacular.

Rule 56. An appeal may be presented either personally or by registered post to the Chief Inspector.

Rule 57. Form of appeal. — The petition of appeal shall be accompanied by the original order, notice or report appealed against or by a certified copy thereof or where no such order, notice or report has been made in writing, by a clear statement of the facts appealed against, the grounds of appeal and the referring section of the Act.

Rule 58. Fixing date of hearing. — On receipt of an appeal, the Chief Inspector shall, if the appeal is to be heard by himself, at once fix a date for hearing the appeal; and if it is to be heard by the appellate authority, obtain a date for the hearing of the appeal from the President of the appellate authority. It is important that there should be no delay in the decision of appeals, as the stoppage of a boiler is likely to put the owner thereof to great inconvenience. The decision should ordinarily be given within 10 days from the receipt of the petition of the appeal.

Rule 59. Procedure before hearing. — When the date for hearing has been fixed, the Chief Inspector shall at once issue a notice to the appellant stating there date for hearing and informing him that if he wishes to be heard in support of the appeal or to produce evidence he must be present either in person or by authorised agent with his evidence on the date fixed. The notice shall be sent by registered post to such address as shall be entered in the petition of appeal.

Rule 60. Presence of Inspector. — In all appeals the Chief Inspector shall decide whether the presence of the Inspector is necessary, and shall issue orders accordingly.

Rule 61. Attendance of witnesses. — The appellate authority shall have power to secure the attendance of witnesses and to make local inquiries under the provisions of the Code of Civil Procedure.

Rule 62. Ex-parte decisions. — If the appellant is not present on the date fixed, the appeal may be decided in his absence.

Rule 63. Appellate Authority. — For the purpose of hearing appeals under section 20, there shall be an Appellate Authority consisting of the President and six assessors, appointed by the Government of Goa, Daman and Diu.

Rule 64. Qualifications of President and assessors. — (1) A person to be appointed as the President of the Appellate Authority shall be one —

- (i) who is holding or has held any judicial office not lower in rank than that of «Civil Judge» or «1st Class Magistrate» or any office which in the opinion of the Government of Goa, Daman and Diu is an equivalent office;
- (ii) who is an advocate enrolled under the Indian Bar Councils Act, 1926;
- (iii) an attorney or a High Court; or
- (iv) a pleader enrolled under the Bombay Pleaders Act, 1920.

(2) A person to be appointed as assessor shall be one who is a mechanical engineer possessing such qualifications as the Government of Goa, Daman and Diu may determine.

Rule 65. Constitution of Appellate Authority. — Whenever the date for an appeal before the appellate authority has been fixed, the Chief Inspector shall, under the orders of the President of the Appellate Authority arrange for the attendance of 3 members of the panel constituted under rule 63 to act as assessors.

Rule 66. Cost in appeals. — In appeals before the Appellate Authority the President is authorised to fix the costs and recover them from the appellant in any case in which the appeal is dismissed; in all cases of appeal in which a local inspection is required by the appellant he shall deposit in advance the full costs of such inspection.

Rule 67. Fees required for certificates granted on appeal. — Any order on appeal authorising the registering of a boiler or the grant or renewal of a certificate shall be deemed to be subject to the payment of such fees as are prescribed by rules or regulations framed under the Act.

VIII. General

Rule 68. Boiler to be in charge of person holding Boiler Attendant's Certificate. — The owner of a boiler shall not use it or permit it to be used unless there is a fit and proper person in immediate attendance and charge as required by rule 69:

Provided that the Government of Goa, Daman and Diu may by notification in the Official Gazette, exempt by boiler or classes or types of boilers from the operation of this rule:

Rule 69. Competent person must possess a certificate: No person who does not possess a certificate of competency as a attendant or Engineer granted by the Board of Examiners in any other State in India, shall be deemed a fit and proper person to hold charge of a boiler and no holder of any such certificate shall be deemed a fit and proper person to be in attendance and charge of a boiler except to the extent of his qualifications indicated in such certificate.

Provided that such certificate is endorsed for validity in this territory.

Provided also that in respect of a boiler of any capacity worked by the military authority a person holding a certificate of competency as boiler attendant issued by a competent military authority shall, while he is in military employment and working under the sole control of the military be deemed a fit and proper person to be in attendance and charge of the boiler.

Rule 70. Holders to produce the same certificate when called for by any authorised person. — The holder of a certificate under these rules shall, at all reasonable times during the period any boiler is in his charge, be bound to produce such certificate when called upon to do so by any of the persons empowered under section 15 to call for the production of the certificate or provisional order authorising the use of the boiler.

Rule 71. Owner to furnish Chief Inspector with particulars of certificates. — (1) The owner of any boiler or battery of boilers who engages any person to be in charge thereof, shall within seven days of such engagement furnish the Chief Inspector with full particulars of such person including the grade, serial number, date and place of his certificate.

(2) The owner of any boiler who engages any person to hold charge of such boiler shall, in the event of such person leaving his employment or in the event of the death of such person, report the fact forthwith to the Chief Inspector.

Rule 72. Limits of daily period of attendance, reliefs allowed and sphere of action. — (1) An attendant in charge of a boiler for which a certificate of competency as an attendant of the first class is required may be relieved of charge in any one day for not more than two periods, the total of which does not exceed two hours by a person holding a certificate of the 2nd class.

(2) The holder of a first class certificate, may, with the consent in writing of the Chief Inspector be relieved by a person holding a certificate of the second class for a period which may extend to seven consecutive days which, in special circumstances, the Chief Inspector may extend to any length of time not exceeding 30 days at a time.

(3) A person in charge of a boiler shall be deemed to be in direct and immediate attendance and charge of the same when he is within 150 feet of such boiler.

Rule 73. When boiler deemed to be in use. — (1) A boiler shall be deemed to be in use for the purpose of these rules when there is active fire in the furnace, firebox or fireplace for the purpose of heating the water in the boiler. A boiler shall be deemed not in use only when the fire is removed and all steam and water connections are closed.

(2) An economiser shall be deemed to be in use for the purpose of these rules, when there is a flow of flue gases past the economiser and an appreciable heat transfer between the water and the heating gases.

Rule 74. Exchange Certificate. — A person holding a certificate of competency as an Attendant or Engineer granted by a Board of Examiners in any other State of India shall, on application have the certificate endorsed for validity in this State. Such endorsement shall be made by the Chief Inspector of Steam Boilers and Smoke Nuisances.

IX. Penalty

Rule 75. The owner of a boiler who works or permits or causes the boiler to be worked at any time in contravention of rules 68, 69, 70, 71 and 72 shall, on conviction, be punished with fine which may extend to one hundred rupees.

FORM A

Boiler Inspection Department

Register of Boilers
(Rules 9, 18 and 22)

Registry No.	Type of boiler	Boiler rating	Name of manufacturer	Year and place of construction	Date of registration	Name of owner	Place where in use	Remarks (Transfers etc.)
1	2	3	4	5	6	7	8	9

In para II of the Register, Column should contain registry numbers and letters.

FORM B

Indian Boiler Act, 1923 (Act V of 1923)

Notice for Examination of Boiler under sections 7 and 8
Rule 34)

No. _____ of 19 _____

STEAM BOILER INSPECTION OFFICE:

Dated the _____ 19 _____

To _____

Gentlemen/Sir,

In reply to your application, dated _____ you are
hereby informed that Boiler, Registry No. _____ at the
above-named premises will be thoroughly examined by the
Government Inspector on the hydraulically tested

To enable the examination to be made, you are bound—

(a) to afford to the Inspector all reasonable facilities for the examination and all such information as may reasonably be required of you;

(b) to have the boiler properly prepared and ready for examination in the prescribed manner; and

(c) in the case of an application for the registration of a boiler, to provide such drawings, specifications, certificates and other particulars as may be prescribed.

Voucher No. _____ in acknowledgement Bank _____ Receipt
Treasury

No. _____ for Rs. _____ accompanies,
Chief Inspector of Steam Boilers,
Maharashtra State.

(See reverse for preparation required)

Preparation for Examination

See Chapter IX of the Regulations

(Regulation 376)

(A) Preparation for Inspection

At every examination of a boiler for the grant or renewal of a certificate, the boiler shall be empty and thoroughly clean in all its parts. All doors of manholes, handholes and sight-holes and cleaning plugs and all caps in the headers and mud-drains of water tube boilers, all firebars, bearers, front plates, bridge plates, firebridges, brick arches, oil fuel burners and mechanical stocker fittings shall be removed. All valves and cocks comprising the boiler mounting shall be opened up and taken apart and the valves or cocks ground, when necessary, before the Inspector's visit.

Provision shall, if required by the Inspector, be made for the removal of lagging or brickwork or other concealing part and for the drilling of plates and for verifying the pressure gauge and safety valves dimensions and weights. All smoke tubes, exterior of water tubes, smoke-boxes, and external flues shall be swept clean.

Provisions shall be made for the effective disconnection of all steam and hot water communication with any other boiler under steam, as prescribed in Chapter X of the Regulations. This shall be effected either by the removal of a length of pipe from the steam and feed piping or by the insertion of substantial blank flanges. Where blank flanges are employed, they shall be inserted between the flange of the chest and the pipe attached to it. No blank flange shall be inserted between a safety valve chest and the boiler.

In the case of forced flow and forced circulation types of boilers, provision shall be made for checking that proper circulation is maintained through all sections of the circuit by the flow of water.

Note.—These provisions as to effective disconnection shall extend to every case where a person is sent or with the assent of the owner or person in charge goes into boiler for any purpose. See Part III of the Regulation.

(Regulation 378)

(B) Preparation for Hydraulic Test

The chest of all mountings subject to steam pressure shall be in place and shut tight or blank flanged. The safety valves shall either be * jammed down or removed and the chest opening blank flanged. The attachment for the Inspector's pressure gauge and nipple @ for connecting the Inspector's test pump hose shall be in order. All doors shall be properly jointed and tightened up. The boiler shall be completely filled with water, care being taken to allow all air to escape and, if possible, a preliminary test not exceeding the working pressure of the boiler be taken before the Inspector's visit to test the tightness of the joints. When a boiler is hydraulically tested for the first time, it shall be entirely cleared of lagging or brickwork; at subsequent tests the lagging or brickwork or portions thereof, shall be removed if required by the Inspector.

Preparation Now Required, (A), (B)

Note.—The last certificate for the boiler should be shown to the Inspector.

* Tapped 19 millimetres whitworth bolt and nut thread.
@ Tapped 22 millimetres whitworth bolt and nut thread.

FORM C

General Working of Boiler

(See rule 8)

Instructions to Boiler Attendants.

These instructions should be frequently and carefully studied, with a view to keeping in mind the precautions to be observed and the ordinary procedure to be followed in the safe working of boilers.

Precautions before starting the Fires

Before starting the fires in a boiler, the attendant should—

- (1) see that there is sufficient water in the boiler, and that the gauge cocks are working freely;
- (2) see safety valves, or open cock on top of boiler to allow air to escape;
- (3) see that the blow-off cock is fully closed and tight;
- (4) see that the safety valves and feed check valve are free and workable;
- (5) note if the pressure gauge pointer is at zero;
- (6) see that the feed pump is in working order.

He must not rely on the supposition that the water he has previously put in the boiler, as it may have run out without the knowledge through a leak or open cock, nor can he be sure that the gauge glass shows the true water level until he has tested it. This is done in the following manner; shut off the lower gauge cock and empty the glass by the drain cock; then shut the drain cock and open the gauge cock; if everything is in order, the water will then rise in the glass to the same height as before.

Raising steam.—In getting up steam in all types of boilers the operation should be as gradual as circumstances will allow. Nothing turns a new boiler into an old one sooner than getting up steam quickly. Forcing the fires when starting work is liable to cause straining of the steams and tubes of the boiler. In the case of large boilers generally steam should not be got up in less than six hours. Before getting up steam, the water level should be observed, to ensure that water is at the proper heights in the glass, the pressure gauge noted and the safety valves tried to see they are free. The blow-off cock should be examined to see that it is completely shut and tight.

Pressure gauge.—The pressure or steam gauge should be kept in order and be in such a position as to be easily seen by the boiler attendant. There should be a plain mark on it showing the highest pressure allowed for the boiler, and the dial should be kept clean so that the figures may easily be read.

Steam pressure.—Ordinarily the safety valve will prevent the steam from rising much above the working pressure, but if the steam gauge shows a rapid increase of pressure as to indicate danger of exceeding the highest limit, water

should be immediately fed into the boiler and the dampers partially closed in order to diminish the effect of the fire. If, however, the water has fallen so low that there is danger of an accident from this cause the fires should be withdrawn before feeding in water, the safety valves eased, and if the engine is at rest it should be started so as to reduce the pressure.

The safety valves are provided to guard against over pressure.

They should be moved by hand every day so as to prevent them from sticking. If moved only occasionally, they are liable to leak.

The valve can be tested by slowly raising it a little, and when let down, it should close perfectly tight. It should never be opened by a sudden knock or pull. If it does not close tight turn it on its seat until it fits, or when its construction does not permit this, raise it slowly a few times and let it down again, but on no account must the valve be screwed down further or loaded more than what has been allowed by the Inspector.

Safety valves must never be overloaded, and spring valves should have ferrules or other provisions against the valves being screwed down too far. In case of an accident resulting, from wilful overloading the culprit might be held criminally responsible at the official inquiry or inquest.

Low water safety valves.—If there is low water safety valve, test it occasionally by lowering the water level to see that valve begins to blow at the right point. It should give warning «before» the water level has sunk too low and before damage can be done when the boiler is open, examine the floats and lever and see that they are free and that they give the valve the full rise. With the ordinary type of high steam and low water safety valve the float should be down at its lowest position and the valve full open when the boiler is empty.

The water gauge.—These will be kept in best order by frequently blowing through. The cocks are thus kept in good working condition without leaking. Blow through the drain cock at the bottom of the gauge and shut and open the steam and water cocks every few hours. These cocks should be blown through more frequently when the water is dirty. Should either of the passage become choked, or whenever the water in the gauge glass moves sluggishly the passage must be cleaned. This is best done with a wire. The gauge glass is so arranged that its top cock connects with the steam space and its bottom cock is below the water line. The water line will ordinarily be near the middle of the glass tube. Always test the glass water gauges thoroughly the first thing in the morning and at the commencement of every shift. This is done by the first opening drain cock and then shutting the upper cock which should give water; the upper cock should then be opened and the bottom cock closed which should give steam; during this test the drain cock should be kept open.

If water and steam do not appear in proper order the cocks are choked and the passage should be cleaned. To lessen the risk of breaking the gauge glass the water cock should always be reopened after the steam cock.

Gauge glasses with a narrow white stripe running the whole length of the glass on the side next the boiler are recommended as they show the water line more clearly especially when the water is dirty.

The boiler regulations framed by the Board require every water gauge glass to be fitted with a guard to prevent injury to the attendants. See that it is always in place, and clean when there is steam in the boiler.

Special Note.—It does not follow that there is plenty of water in the boiler because there is plenty of water in the gauge glass. The passages may be choked and empty gauge glasses are sometimes mistaken for full ones, and explosions have resulted therefrom. Hence the importance of keeping the gauge cocks perfectly tight and clean and of blowing through the test cocks frequently.

A large number of accidents have due to inoperative water gauges, and to negligence of the attendant in not carefully reading the water level.

The blow-off Cock.—The Blow-off should be used daily if the water is at all dirty or sedimentary, especially with Locomotive type and Vertical Boilers, as their narrow water spaces are liable to get choked with mud, which soon hardens into a solid mass. The amount of water to be blown out depends on the size of the boiler and can be determined only from experience. When blowing out, the best result is obtained if the water has been at rest for some time (say before it is started) thus giving the sediment time to settle; if the feed water is cleaned merely turn the cock round.

The scum Cock.—When scum cocks are fitted, if the feed water is dirty, a little should be blown off daily; if the water is clean, merely turn the cock round. Before opening the scum cock, see that the water is at the height indicated by the water level pointer, otherwise the scumming will be ineffective. Water should be blown from the surface through the scum cock when steam is being drawn off, i.e. when the engine or other machinery is working.

Manhole and other Door Joints.—When making such joints the jointing materials should never be of round sectioned packing. Care must be taken that the spigot of the door is centrally placed in the hole, as many accidents have resulted from packing being blown out between the spigot and side of hole, even when the clearance was only 3 millimetres. The nuts must be carefully and evenly tightened. Further tightening should be made during the process of heating up the boiler when raising steam.

Steampipes.—When properly arranged should give no trouble. Frequently, however, they are so designed as to contain cockets, in which, while out of use, condensed steam accumulates. Such water is exceedingly dangerous and great care should be taken to see that the pipes are properly drained before the stop-valve is opened otherwise «water hammer» will take place even the best designed steam pipes, and disastrous explosions, causing loss of life and property may occur.

Scale and Grease.—Roughly speaking scale offers a hundred times as much resistance to the passage of heat as does a similar thickness of the steel or iron. 12.7 millimetres furnace plate covered with 2.5 millimetres scale is as efficient a heat retarder as steel furnace 254 millimetres thick. Grease is about ten times worse than scale. In a boiler at work the temperature of a clean furnace plate is only slightly in excess of that of the water in the boiler; but if scale or grease is interposed between the water and the plate, the latter acquires a temperature more nearly approximately that of the flame with which it is in contact. If the fire is fierce (artificial draught) the furnace tube may grow so hot that it elongates considerably. If in addition, cold air is admitted during each firing, a concerning action of the furnace taken place, which is one of the worst causes of boiler wear and tear.

Wear and Tear.—Can be reduced and the life of a boiler prolonged if scale and grease are prevented from accumulating in a boiler. The combined effects of scale or grease and artificial draught are disastrous. Scale or grease also causes waste of fuel.

Grease.—A mixture of sedimentary water, soda, and grease produces an adhesive scum. Where this is suspected, the water level should never be lowered below the furnace top unless the boiler is afterwards entered and this scum cleaned off the furnace plate before the firing again.

Scale Removal.—The customary method is not a satisfactory one. The boiler is emptied and then cooled down by opening all the manholes, and the result is that the scale which would otherwise be soft, hardens through contact with the air and requires laborious chipping off.

A very effective, but slower method, is to retain the water in the boiler until cool, and not to run it out until the men are ready to enter the boiler with water hose brushes and scrapers. The scale will then be soft and easily removable.

If time is a consideration, the cooling can be accelerated by adding cold feed to the hot water in the boiler and slowly running off the cold water. Another method is to blow off the boiler with the lowest possible pressure (not more than 1.4 Kilogram per square cm.) and to keep it closed until cold. The scale will then be easily removed.

Treatment of Feed water.—Many feed waters require soda or other chemicals to arrest corrosion or to change the nature of the scale.

There is no harmless chemical which will remove scale or sediment when it has once got into the boiler and the only effective process is to purify the feed water before it enters the boiler. By this means, the sediment, and generally, the added chemicals too, can be deposited in tanks or in filters, and therefore never goes into the boiler. Excepting when the water obtainable is very good waterpurifying apparatus ought to pay any boiler owner, particularly at those works where three or more boilers are in constant work. Boiler owners wishing to have definite advice as to the best treatment of their feed water should have it analysed at some chemical laboratory and ascertain the best treatment in the particular circumstances.

Special attention is drawn to the not infrequent but very bad practice of allowing the waste steam from the Engine Cylinders or Pumps to be drained into the Boiler Feed Water Tanks. The waste steam from cylinders is always mixed with a certain amount of oily matter which will be deposited in the feed water tanks and ultimately be pumped into the boiler, with possible disastrous results, as it will be obvious

to every careful boiler attendant that should the oil be deposited on the furnace crowns, they may become overheated and collapse.

It should be the first care of the Boiler Owner, and the Boiler Attendant to see that the feed water is kept as pure as possible. Impure feed water means additional expense on the upkeep of the boiler.

Preservation of Boilers when not in use. — Steam boilers when not in use are liable to deterioration from corrosion and unless well cared for and made rest-proof, they may depreciate more rapidly than when in use. They should be thoroughly drained and thoroughly dried and all valves, cocks and openings closed so as to exclude moisture. Another plan is to fill the boiler with water to which about 1/100 per cent, caustic soda has been added.

Special Instructions for Boiler No. — This boiler should be opened up and thoroughly cleaned after a period of work which should not exceed A record of such cleanings should be maintained and produced, when required by the Inspector.

Dated

Inspector of Boilers.

By order and in the name of the Administrator
of Goa, Daman and Diu.

B. K. Chougule, Secretary, Industries and Labour
Department.

Panjim, 8th January, 1965.